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(to be used for all correspondence after initial filing)

Application Number	09/682,486
Filing Date	09/07/2001
First Named Inventor	Chia-Lin Hsu
Group Art Unit	1765
Examiner Name	
Attorney Docket Number	NAUP0391USA

Total Number of Pages in This Submission **7**

ENCLOSURES (check all that apply)

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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Winston Hsu, Reg. No.: 41,526
Signature	<i>Winston Hsu</i>
Date	10/14/2003

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

5 Applicants: Chia-Lin Hsu, Shao-Chung Hu,
Teng-Chun Tsai

Filing Date: 09/07/2001 Art Unit: 1765

App. No.: 09/682,486 Docket No.: NAUP0391USA

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Title: CONTROL SYSTEM FOR IN-SITU FEEDING BACK A
POLISH PROFILE

To: Commissioner for Patents
15 P.O. BOX 1450
Alexandria, VA 22313-1450

Subject: Information disclosure statement under 37 CFR
§1.56.

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Dear Sir:

This is an Information Disclosure Statement in
accordance with the duty to disclose information
25 material to patentability under 37 CFR §1.56. The
applicant wishes to make of record the document listed
on the accompanying form PTO/SB/08. It is respectfully
requested that the examiner initials the cited
reference on the form and that it be made of record
30 in the application and that a copy of the initialed
form be sent to the applicant with the next communication
from the examiner.

Since the IDS is filed before the mailing date of a first Office action on the merits, a petition to request consideration of the information disclosure statement is hereby requested according to 37 CFR §1.97(b). The prior art patent contained in the information disclosure statement was cited in communications from the Taiwan Intellectual Property Office on Aug. 7, 2003 for a counterpart foreign application. Since this IDS is being submitted within three months of the date in which this prior art patent was first cited, the applicant sincerely hopes that the examiner can consider the item contained in this IDS.

According to the requirement set forth in 37 CFR §1.98 and MPEP 609 (Rev.1, Feb. 2000), the applicant is submitting a copy of Taiwan Patent documents TP publication No. 276207 (published May 21, 1996) and a concise explanation of the relevance to this application hereinafter. For convenience, claim 1 of the present application is appended at the end of this response.

TP 276207 corresponds to US Patent No. 5,595,529, both patents being owned by the assignee of this application.

Regarding TP 276207, in US 5,595,529, a device for performing abrading operations is disclosed. As shown in Figs. 1 and 4 of the prior art, the device includes a coil tube 36 wound about in a spiral configuration to cover most of a lower lap plate 14. The coil tube

36 supplies coolant flow adjacent the lower lap plate 14 to control plate temperature during the lapping cycle. The coil tube 36 includes an inner coil end 42 located at the center of the plates, and an outer coil end 44 located adjacent the outer edge of the plates. In order to provide a more even lapping plate temperature across the entire lapping surfaces of the lapping plates, the coolant direction may initially flow from the inner coil end 42 to the outer coil end 44, and then at some predetermined point or time sequence, which may be dependent on the temperature of the lapping plates, the flow may be reversed so to initiate at the outer coil end 44 and head towards the inner coil end 42.

However, the prior art never teaches that the device has a first sensor and a sensor positioned on the plate to be used to detect polish rates of different regions on a wafer as disclosed in claim 1 of the present application. In addition, the prior art never teaches that the signals detected by the first sensor and the second sensor can be transmitted to a control unit to be compared, so that the amounts of the slurry or the force loaded on different regions of the wafer can be adjusted. Thus, the claimed invention of the present application is significantly different from the prior art as shown in US 5,595,529 and the corresponding TP 276207.

Present application claim 1:

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1. (original) A control system for in-situ feeding back a polish profile of a chemical mechanical polishing

(CMP) machine, the CMP machine comprising a polish platen, the polish platen comprising at least a first ring-shaped region and a second ring-shaped region, a polish pad installed on the polish platen, a carrier head for holding a wafer positioned over the polish pad, the carrier head at least comprising an inner portion and an outer portion corresponding to the first ring-shaped region and the second ring-shaped region, respectively, and a slurry supply device, the slurry supply device comprising a first slurry pump valve positioned corresponding to the first ring-shaped region, and a second slurry pump valve positioned corresponding to the second ring-shaped region, the control system comprising:

at least a first sensor and a second sensor, installed in the first ring-shaped region and the second ring-shaped region, respectively; and

a control unit electrically connected to the first sensor and the second sensor for comparing the polish rate of the wafer over the first ring-shaped region and the polish rate of the wafer over the second ring-shaped region according to signals of the first sensor and the second sensor, and adjusting the amounts of the slurry supplied by the first slurry pump valve and supplied by the second slurry pump valve according to a predetermined process, or adjusting the force loaded by the inner portion of the carrier head and loaded by the outer portion of the carrier head according to the predetermined process.

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Respectfully Submitted,

Winston Hsu

Date: 10/14/2003

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